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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/028,096 | 10/25/2001 | Masaki Takasan | 5000-4967 | 1092 |

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| EXAMINER |
|---|
| CHAPMAN JR, JOHN E |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2856 | |

DATE MAILED: 08/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/028,096 | TAKASAN ET AL. | |
| | Examiner | Art Unit | |
| | John E Chapman | 2856 | |

*-- Th MAILING DATE of this communication appears on the cov r sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on _____ .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1,3-8 and 10-17* is/are pending in the application.

4a) Of the above claim(s) *4 and 10* is/are withdrawn from consideration.

5)☒ Claim(s) *14,16 and 17* is/are allowed.

6)☒ Claim(s) *1,3,5-8,11-13 and 15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

## DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is not clear what limitation claim 15 adds to claim 14. Claim 15 recites "further including a vibration device" but no additional elements are recited. The limitation that "the external impedance element is one of a plurality of external impedance elements, wherein the external impedance elements have a first external impedance element, which is connected to the piezoelectric element" adds nothing to "an external impedance element connected to the piezoelectric element" recited in claim 14. The "second piezoelectric element" in line 5 is not operatively connected to any other claimed element, and there is no antecedent basis for "the second external impedance element" in line 6.

3. Claims 8 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 09-202425 in view of Hashimoto et al. (1998).

JP 09-202425 discloses an apparatus for levitating and transporting an object 7 comprising a plurality of vibrators 3, each comprising a piezoelectric transducer 16 connected to an oscillator 15, which is in turn is connected to an AC power source. An LR circuit adjusts the impedance of

the vibrator. It would have been obvious to provide a variable impedance in order to obtain the maximum excitation of travelling wave, as taught by Hashimoto et al. (p. 3231). The only other difference between the claimed invention and the prior art consists in connecting both vibrators 3 to a common power supply for simultaneous actuation. In most environments there is but a single source of AC power provided by a local power company, and it would have been obvious, if not necessary, to connect both vibrators to that source of power. In the rare instances where there is available an alternative source of AC power, it still would have been obvious to use a single source of AC power in order to minimize the number of electrical connections. It furthermore would have been obvious, if not necessary, to activate the transducers simultaneously in order to synchronize the travelling waves in the vibrators so as to transport an object along the vibrators.

4. Claims 1, 3 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 09-202425 in view of Hashimoto et al. as applied to claim 8 above, and further in view of Rey.

It is well known in the art to use either a magnetostrictive or piezoelectric transducer to produce levitating waves, as taught by Rey (col. 2, lines 59-64). Accordingly, it would have been an obvious substitution of functional equivalents to use a magnetostrictive transducer in lieu of the piezoelectric transducer 16 of JP 09-202425.

5. Claims 14, 16 and 17 are allowed.

6. Applicant's arguments filed August 4, 2003 have been fully considered but they are not persuasive. Applicant argues that JP 09-202425 fails to disclose an apparatus having an adjuster for adjusting the impedance of a vibration device. However, JP 09-202425 was not relied upon to show an apparatus having an adjuster for adjusting the impedance of a vibration device. Rather, Hashimoto et al. (1998) was relied upon. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant further argues that JP 09-202425 fails to disclose an apparatus having a common power source which is connected to more than two transducers simultaneously. Applicant notes that according to Fig. 7 of JP 09-202425, transducers 16 are selectively vibrated in accordance with connecting the switches 21a, 22a to the corresponding terminals 21b, 21c, 22b, 22c. However, the transducers 16 in Fig. 7 at opposite ends of vibrator 3, which transducers are selectively vibrated in order to determine the direction of the travelling wave. They do not correspond to adjacent transducers in adjacent vibrators 3, wherein it is desired that the travelling waves be synchronized in order to transport an object along the vibrators. As indicated above, it would have been obvious, if not necessary, to activate the "first" transducers simultaneously in order to synchronize the travelling waves in the vibrators so as to transport an object along the vibrators.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mr. Chapman whose telephone number is (703) 305-4920.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956.

JOHN E. CHAPMAN
PRIMARY EXAMINER